InFlow (Information Flow): An integrated model of applied information literacy

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Introduction

InFlow is a new information literacy model which is designed to be engaging for students and to support student-centred and individualised learning. It is focussed on supporting authentic learning experiences which prepare students for future life and the workplace, and on the production of creative, tangible outputs. The model is adaptable for different age ranges; the basic elements can be applied in tasks from infants to adult education. Importantly, it is designed as a process which flows naturally from one element to the next, rather than a set of isolated tasks.

Background to InFlow

InFlow has been developed based on work carried out as part of the iTEC project (http://itec.eun.org), an EU-funded project taking place between 2010 and 2014, which is working to define an achievable vision of technology-supported learning, compatible with European schools. Important features of iTEC include support for constructivist pedagogies; the introduction innovative and student-centred technologies into the classroom; and the encouragement of collaboration and group work, alongside developing the role of the teacher as guide or mentor.

A review comparing the types of teaching and learning activities encouraged in iTEC with those supported by a number of the most commonly-used existing information literacy models suggested the need for a new model for information literacy. Models developed in the past often do not fully reflect the types of twenty-first century pedagogical practices which are becoming ever more common in schools. These include practices such as:

- student-centred constructivist and social constructivist approaches;
- collaborative learning and team working;
- presentation as a formative activity to review and revise ideas, not just as the culmination of a project;
- technology being integrated throughout the learning process, not just at the information gathering stage;
- information gathering from primary sources such as observation and interviews and the use of photographs, video and audio;
- flexibility and individualised approaches;
- students taking on the role of producers, creators and designers, and not merely consumers of existing knowledge.

Overview of InFlow

InFlow consists of eight elements which can be used in any order to create an activity or project. It is not necessary to use every element in an activity, and equally, elements can appear more than once. A summary of each of the elements is presented below (in alphabetical order).

1. **Ask:** Students communicate their prototypes and design ideas to teachers, other students, or people who could be future users of their outputs using models, drawings, mock-ups etc and ask for comments and ideas for modification.
2. **Collaborate:** Students form teams based on interests and/or skill sets. They share collected media files within these teams, or with students from other classes/schools or external collaborators where appropriate.
3. **Explore:** Students explore ideas for their output by collecting information from both secondary sources (books, websites, videos, blogs etc) and primary data (observation, interviews etc).
4. **Imagine:** Students discuss, question and familiarise themselves with the task set; identify possible challenges they will face; and consider ways they might overcome these. They then create (or refine) an activity plan.
5. **Make:** Student teams create their output. This might take a variety of formats, including a presentation, game, learning resource or artefact (digital or non-

digital). Students may do this several times as they create an initial prototype, revised version(s) and final output.

6. **Map:** Students organise initial (or revised) ideas and analyse their findings using mind-mapping techniques.
7. **Reflect:** Students share and record reflections on project progress, challenges and future steps. They also evaluate the tools and resources they have used to support their learning and build a shared collection of ways to tackle challenges.
8. **Show:** Students present their outputs, process, learning achievements and possible future steps to other students, teachers, parents, local community or other groups.

What makes InFlow different from existing information literacy models?

InFlow has been designed to encourage students to engage with information in a variety of ways as they map, explore, ask, reflect, collaborate, imagine, show and make. The model is closely based on a series of learning activities which have been piloted among teachers in 19 European countries. These learning activities received strong support among teachers at both primary and secondary levels and across a range of subjects (McNicol and Lewin, 2013). Although many did not realise it, these teachers were using this approach to support the development of their students' information literacy skills as they conducted activities such as making games; creating models; and making videos and animations[1].

InFlow differs from many existing information litearcy models in a number of ways which can be summarised as follows.

Flexibility and participation

As Markless and Streatfield (2007) have pointed out, although many information literacy models refer to the need for flexibility or to the iterative nature of knowledge construction, the way in which most are presented strongly suggests a linear sequence with relatively little opportunity for adaptation. In contrast, the eight

[1] See http://itec.eun.org/web/guest/teacher-stories for examples.

elements of InFlow can be undertaken in any order and an iterative approach is strongly encouraged as students may return to elements several times during the process. It is therefore clear that there is no single 'correct' order of activities; instead, librarians, teachers and students can design different options which are best suited to their environment, the group of students, resources available and other factors. This model is intended to be refined and adapted by each librarian to suit their own situation and the needs of their students. Some may wish to plan each stage before they embark on a project, while others may prefer to adopt a more flexible approach, deciding on future elements as the project progresses. In either case, it is possible to involve students, and other stakeholders such as subject teachers and ICT co-ordinators, in designing the project. Its flexibility also means that the model can be used for both long-term projects and shorter activities. It is possible to use InFlow without drastic timetable restructuring or access to substantial resources, but equally, it can accommodate innovative methods and technologies if these are available.

Design and creation

Traditionally, information literacy models, like many teaching practices, have focussed on reproducing and summarising existing knowledge in established formats. In general, models have not been designed to support the type of tasks which students will encounter when they enter the workplace, tasks which will require them to design, and to create new knowledge. The InFlow model can be used to produce traditional outputs such as essays or presentations, but it is equally applicable to making more creative outputs such as games, videos and artefacts (digital or non-digital). An essential element of design is the need for prototyping, soliciting feedback and revising designs (often several times). In InFlow, therefore, the production of an output is not necessarily seen as the culmination of the project, but can also be an intermediary stage of the process.

Exploration and information gathering

Despite evidence that people and the environment are important sources of information for young people (McNicol et al, 2001), the use of primary sources, such as observation and interviews, rarely feature in information literacy models. InFlow encourages students to collect, and evaluate, information by interviewing people;

asking potential users of their outputs for feedback; and by observing aspects of their environment, as well as using secondary sources such as books, journals and internet resources.

Collaboration

Although the importance of collaboration as a critical dimension of teaching and learning is widely recognised, information literacy models remain focussed on individual skills and endeavours for the most part. For example, models often refer to the 'information literate individual' or 'information literate person' (ACRL, 2000, SCONUL, 2011). Collaboration is a key component of InFlow however; the model is designed to support student group projects and to help develop team working skills. Its application is not limited to this approach however and elements can also be carried out as an individual task if preferred.

Reflection

Reflection is another important element of InFlow, but it is acknowledged to be an area where students can struggle. The model, therefore, offers suggestions on ways in which reflection can be integrated more effectively into learning activities, for example through the use of learner response systems, group poetry or video diaries.

InFlow in practice

There are, therefore, many different ways in which the InFlow model might be used to design complex, long term activities as well as much shorter projects, or one-off sessions. The following is an example of a fairly straightforward activity which suggests just one way in which the InFlow Model can be transferred into practice

Example: Researching and devising questions for a class quiz. (1-2 sessions) (Figure 1).

As this is a short activity, it is planned the librarian, working with the subject teacher. However, this activity forms part of a wider programme of information literacy which is planned at the beginning of the school year with input from students, ICT co-ordinator, SENCO etc.

Students are divided into teams by the teacher, who ensures that each team includes students of differing abilities (Collaborate). Each student team then considers which topics they want to include in their quiz questions (Imagine). The teacher and librarian offer examples, but it is left to the students to choose from the topics they have studied during the term. When deciding which topics to include, teams take account of the strengths, weaknesses and interests of the team members.

With help from the librarian, or teacher, each team then identifies the different sources they could use to find information for their quiz questions, considering how reliable these are likely to be. They include people they might ask, as well as books and internet sources they could consult (Map). Students then gather information for their quiz questions using the sources identified (Explore) and share the information they find within their team (Collaborate). Each team writes a series of questions and answers for their quiz. They also decide on other elements of the quiz, such as how scores will be awarded (Make). The quiz takes place, with each team taking it in turns to act as question master while the others answer (Show).

After each round, or team presentation, the other students rate the questions for their difficulty, interest and relevance to the topic (Ask). At the end, the whole group reflects on which types of questions they felt work best. This takes place as a group discussion facilitated by the librarian and teacher (Reflect).

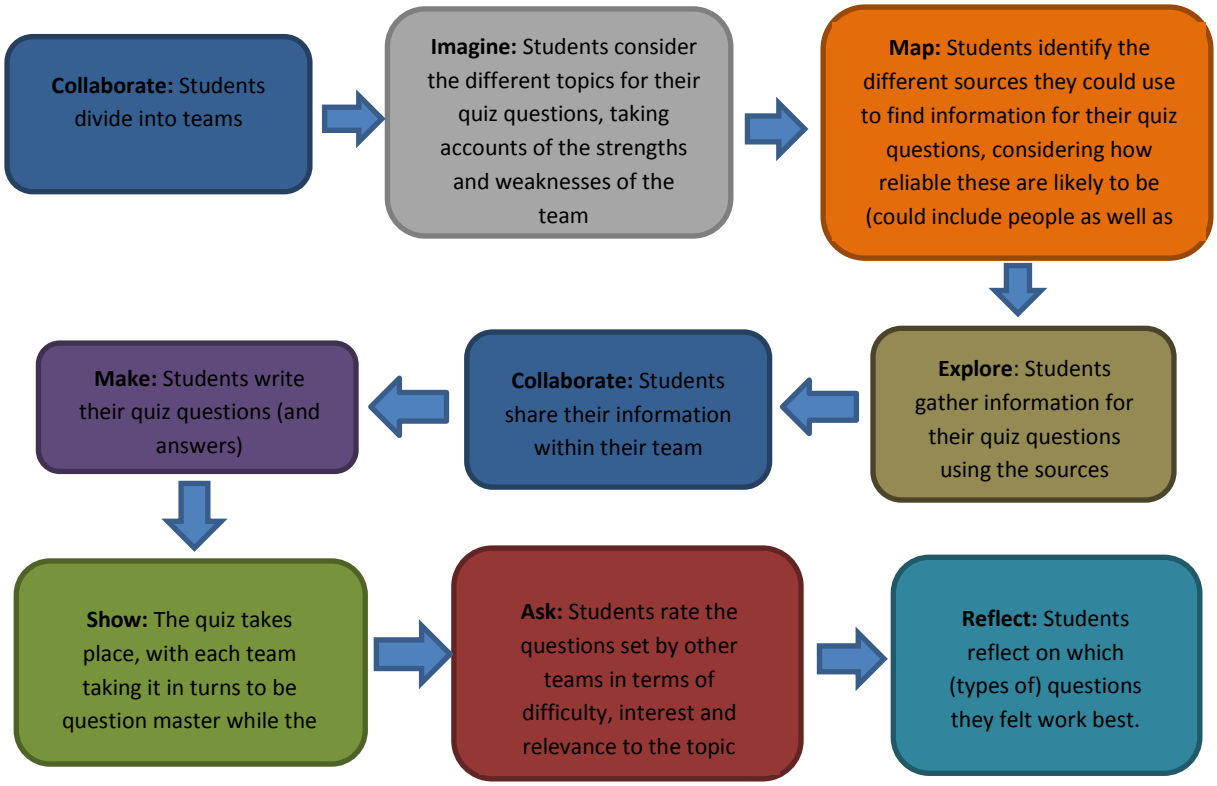

Figure 1: Overview of quiz design activity

Future developments

To date, feedback received on the first two drafts of the model has resulted in a number of changes and developments, including the addition of more examples and specific guidance on reflection and assessment. Overall, the feedback has been highly positive; librarians have described InFlow as “engaging for students”; “active, communicative, integrated and applied”; and “a very creative method”. The model is currently being tested in libraries and will continue to be adapted based on feedback. Hopefully, an online version will be developed in the future which will allow greater interactivity as well as convenient adaptation.

Copies of the current version of model are available from Sarah McNicol (s.mcnicol@mmu.ac.uk) and any feedback would be very welcome.

References

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